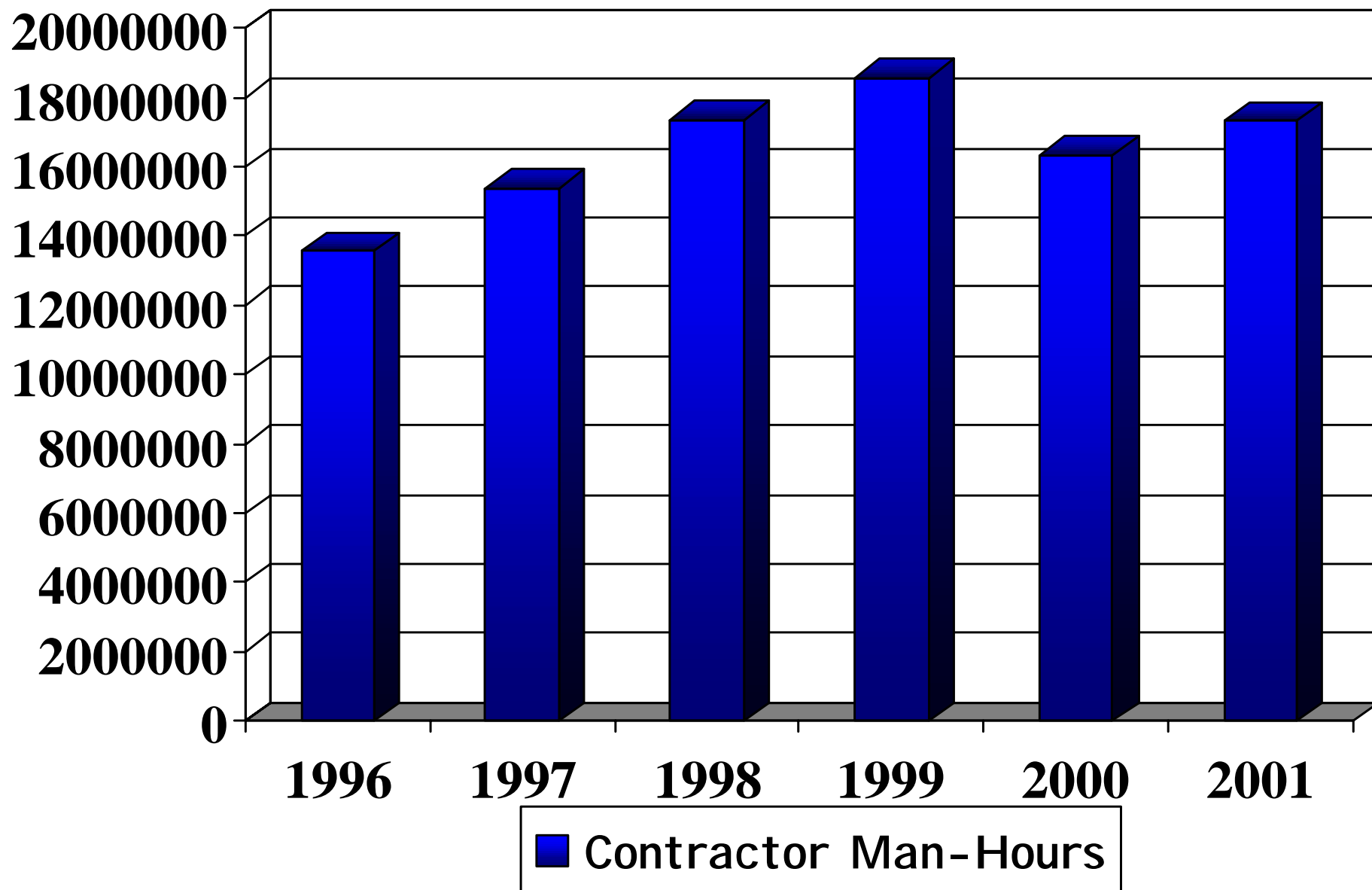


# Atlantic Division

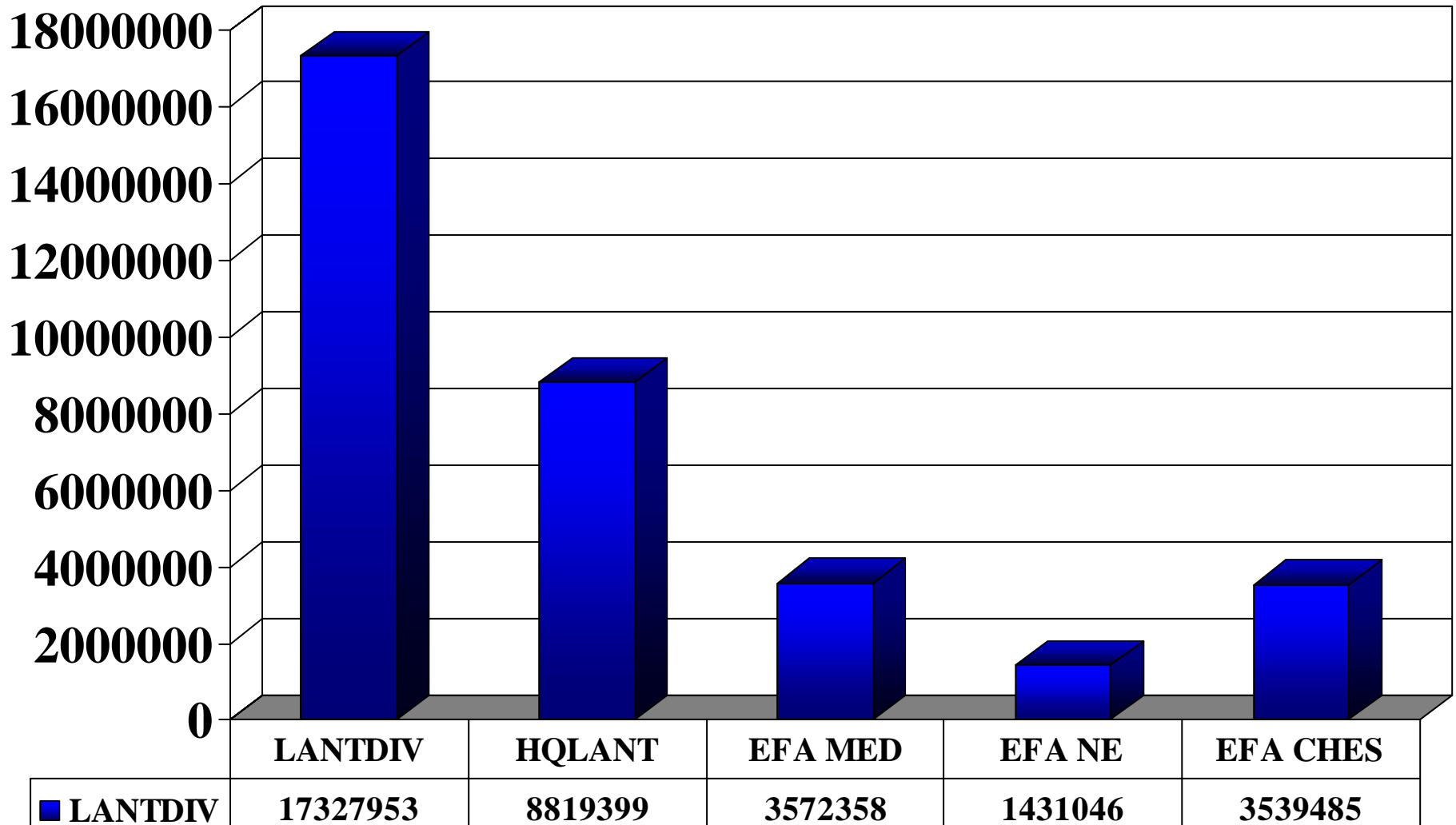
## *Construction Safety*



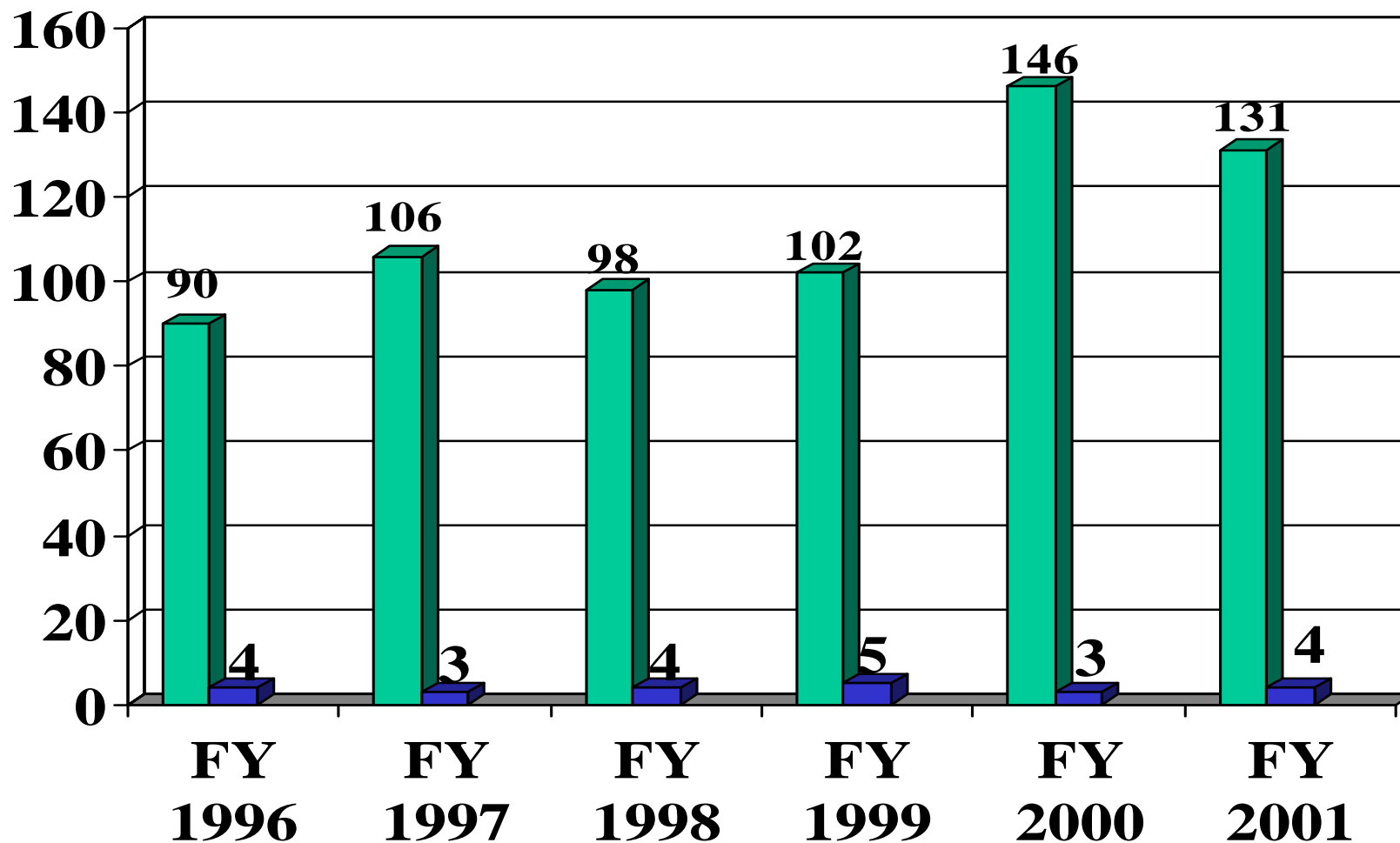
# EFD LANT CONTRACTOR MAN-HOUR TOTALS FY 96 - FY 01



# EFD LANT FY 2001 Contractor Man Hour Totals

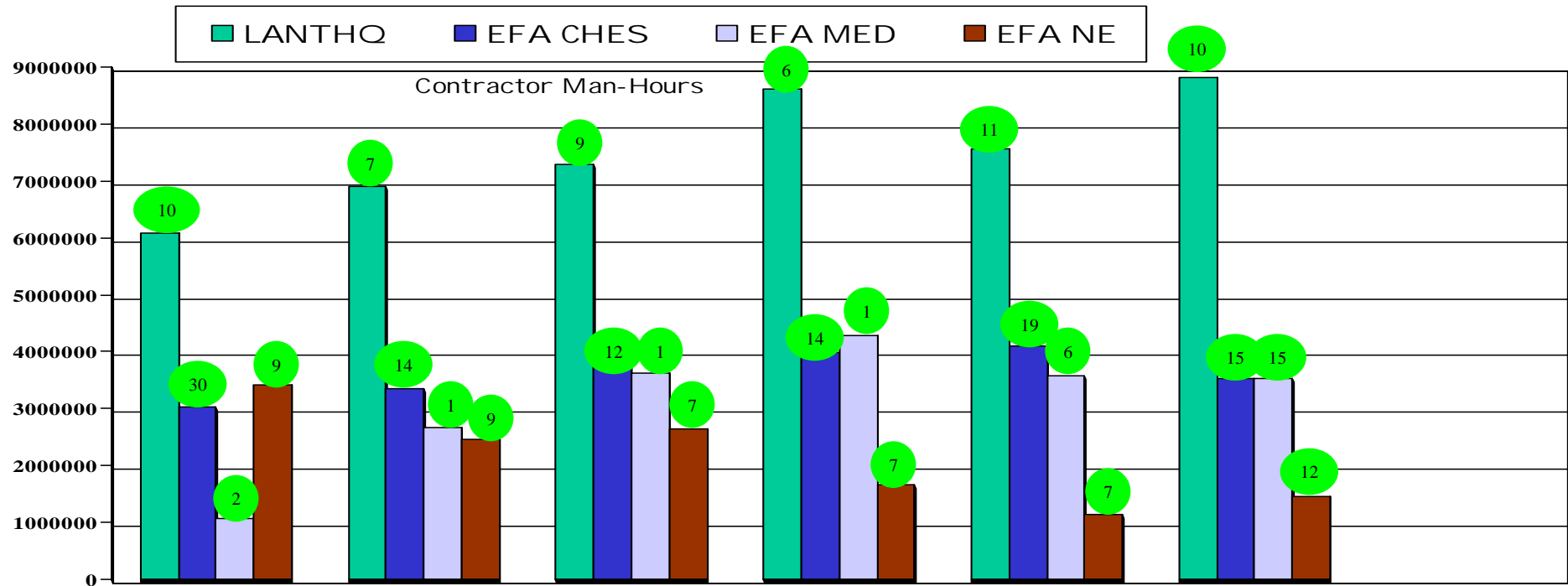


## NAVFAC CONTRACTOR ACCIDENTS



Lost Time Cases ■ Fatality Cases ■

# LANTDIV COMPONENT CONTRACTOR MAN-HOUR & ACCIDENT RATE COMPARISON CHART



	1996	1997	1998	1999	2000	2001
EFA MED	0.21	0.07	0.04	0.09	0.36	0.84
EFA CHES	1.98	0.83	0.62	0.71	0.92	0.84
EFA NE	0.52	0.65	0.38	0.46	1.4	1.6
HQ LANT	0.33	0.2	0.24	0.12	0.28	0.23
LANTDIV	0.72	0.34	0.3	0.24	0.54	0.61
NAVFAC	0.63	0.51	0.42	0.47	0.75	0.71

Yellow cells denote rates above NAVFAC

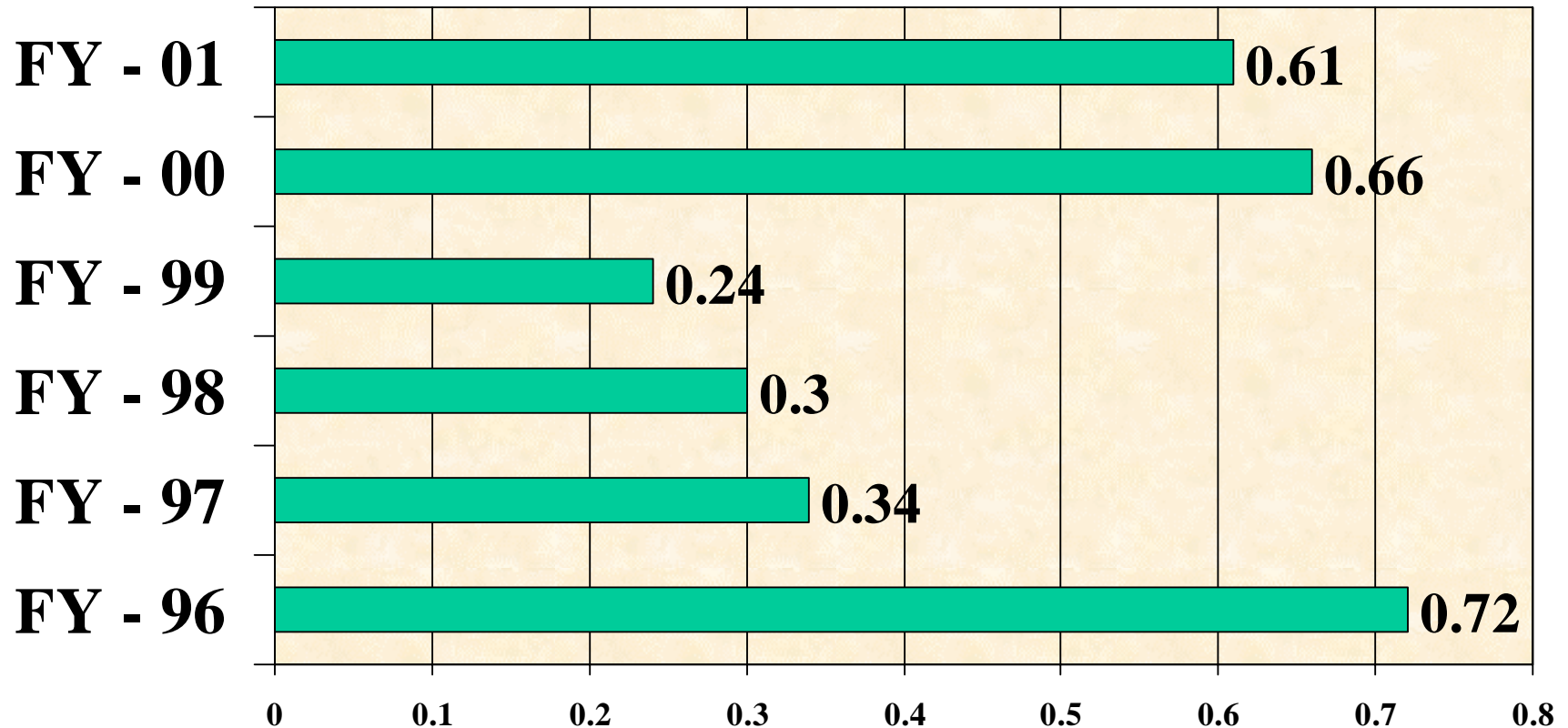
Accident Frequency Rate is an industry developed safety performance indicator (Lost Time Accidents/Total Man Hours) X 200,000

Example: HQLANT Rate for FY 2001 MIDYEAR = (4 lost-time accidents/4276818 man-hours) X 200,000 = .18



= number of lost-time accidents

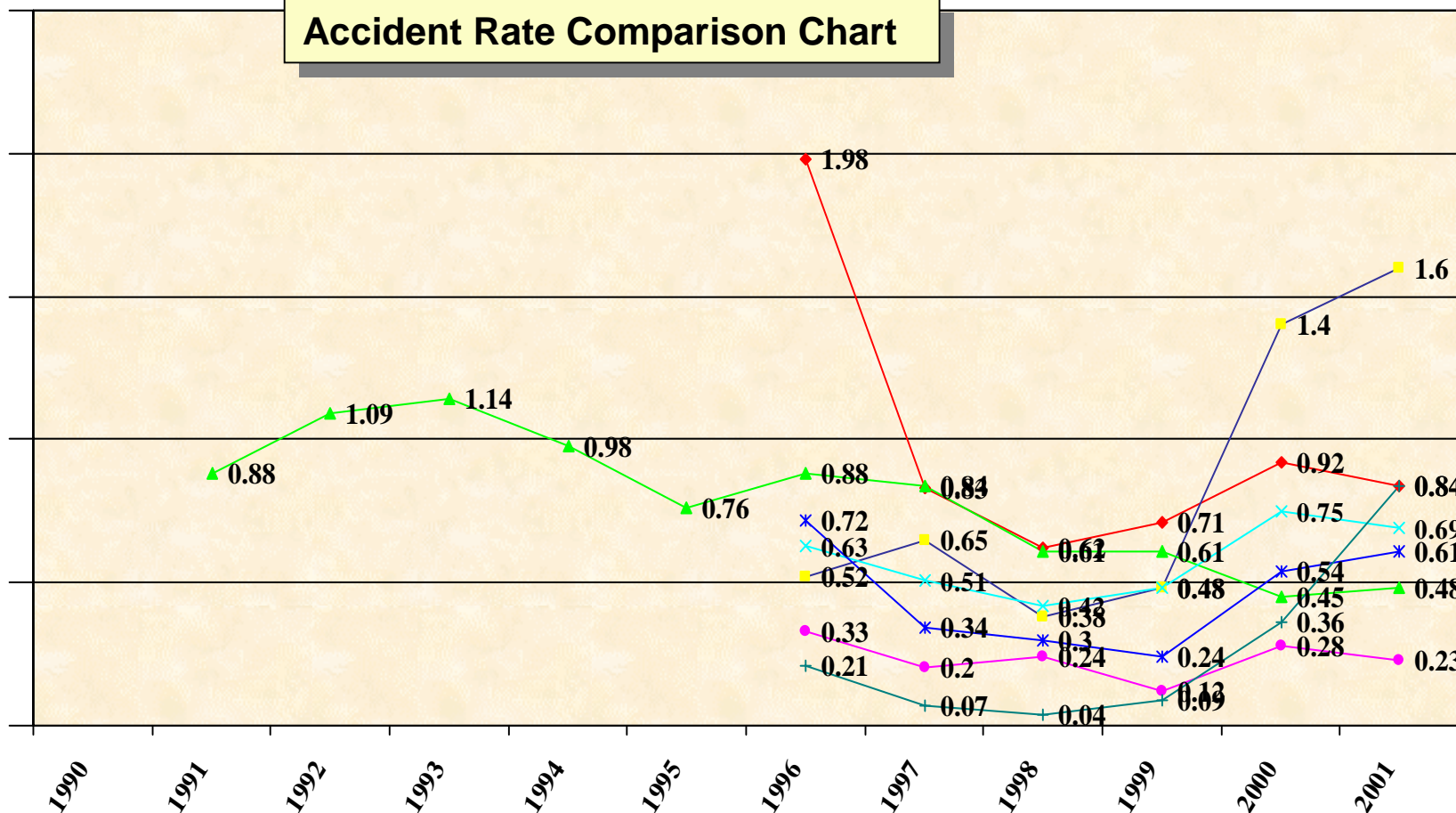
# LANTDIV ACCIDENT FREQUENCY RATE HISTORY



	FY - 96	FY - 97	FY - 98	FY - 99	FY - 00	FY - 01
Frequency Rate	0.72	0.34	0.3	0.24	0.66	0.61

2.5  
2  
1.5  
1  
0.5  
0

Accident Rate Comparison Chart



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
—◆— EFA CHES							1.98	0.83	0.62	0.71	0.92	0.84
—■— EFA NE							0.52	0.65	0.38	0.48	1.4	1.6
—▲— USACE Avg.		0.88	1.09	1.14	0.98	0.76	0.88	0.84	0.61	0.61	0.45	0.48
—×— NAVFAC							0.63	0.51	0.42	0.48	0.75	0.69
—*— LANTDIV							0.72	0.34	0.3	0.24	0.54	0.61
—●— HQLANT							0.33	0.2	0.24	0.12	0.28	0.23
—+— EFA MED							0.21	0.07	0.04	0.09	0.36	0.84

# **Atlantic Division, Naval Facilities Engineering Command Contractor Work Site Safety Assessment Process**

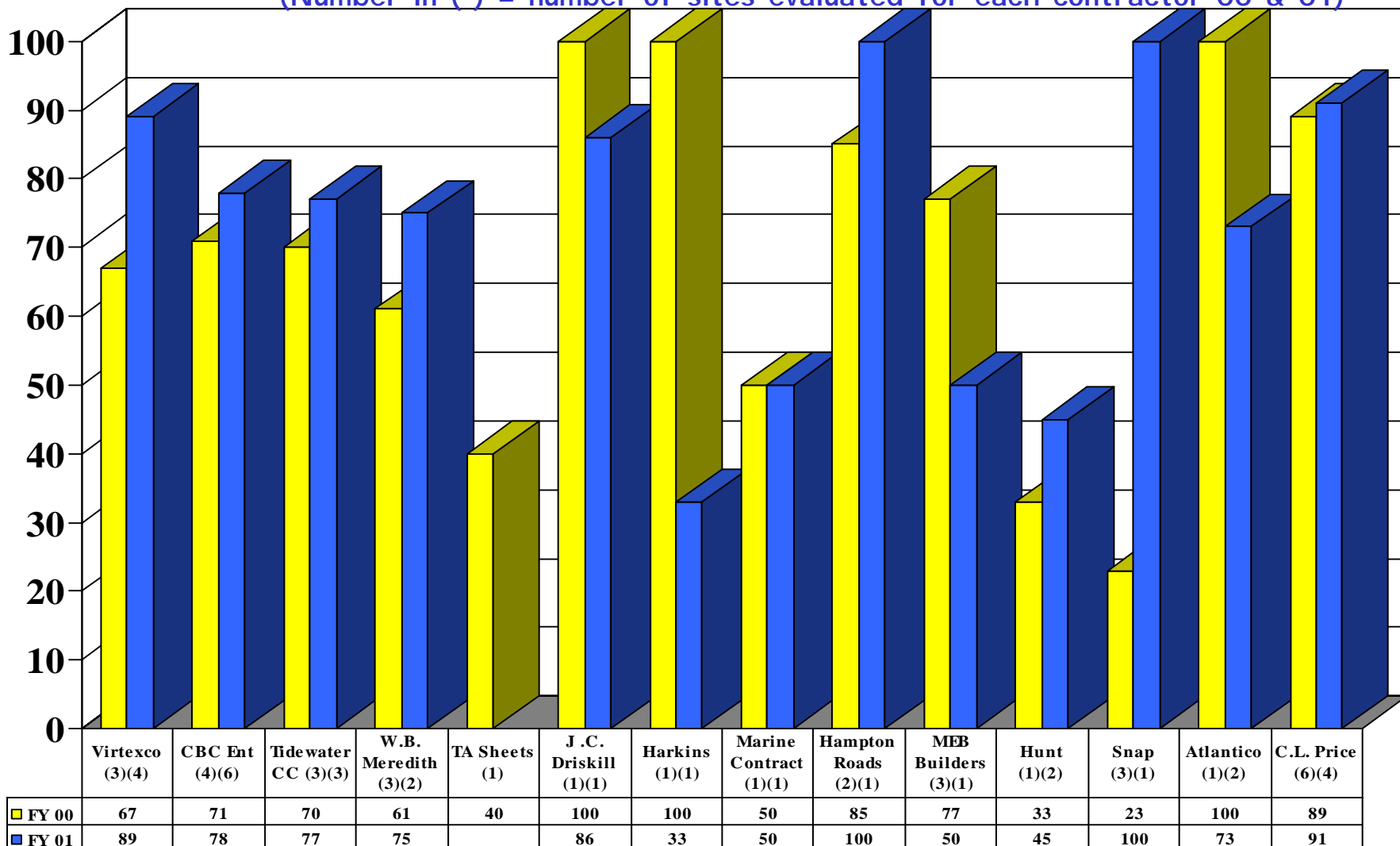






# HQ LANT Contractor Average "OVERALL" Site Rating Comparison Chart

(Number in ( ) = number of sites evaluated for each contractor 00 & 01)





**User Name:**

**Password:**

If you do not have a FAIR account, [click here to apply.](#)

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Update/View Activity Data  
Summary Report  
View EFD/EFA Data  
Download Summary Data

Insert Report  
Update/View Report  
Check Pending Reports  
Summary Reports  
Download Summary Data

**FAIR**

Online

**FAIR - Home**

The Facility Accident and Incident Reporting (FAIR) Database is maintained by the Naval Facilities Safety and Health Office and data is collected from Naval Facilities Safety and Health Reporting Activities. The function of FAIR is to report, track, and analyze facility related accidents resulting from an injury or death to contractor personnel, and/or any property damage, as well as report on a quarterly basis contractor man-hours and lost time accidents. This database allows contractor accident/incident man-hour data to be input by any NAVFAC activity. High-level reporting thresholds of the Navy Safety Center do not currently capture the type of contractor mishap data needed for program decisions within NAVFAC.

To retrieve a blank FAIR report, please click on the following link: [Blank FAIR Report](#)

To begin your report, please select one of the options at the top of the page (i.e.: Contractor Mishap). For your convenience, we have added a *Help* site to assist you with any question you may have while using FAIR. To print a copy of the user manual please click on the following link: [User Manual](#).

Send comments and questions to: [webmaster@navfacssafety](mailto:webmaster@navfacssafety). We encourage your feedback.



Naval Facilities Engineering Command  
1322 Patterson Avenue SE Suite 1000  
Washington DC 20374-5065



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 Summary Reports  
 Download Summary Data

Update/View Activity Data  
 Summary Report  
 View EFD/EFA Data  
 Download Summary Data

**FAIR****Online****FAIR - Home**

**Field Office:**  
**FY: QTR:**

**\*Contract Number:****\*Prime Contractor:**

Sub Contractor:

**\*Industrial Group:**

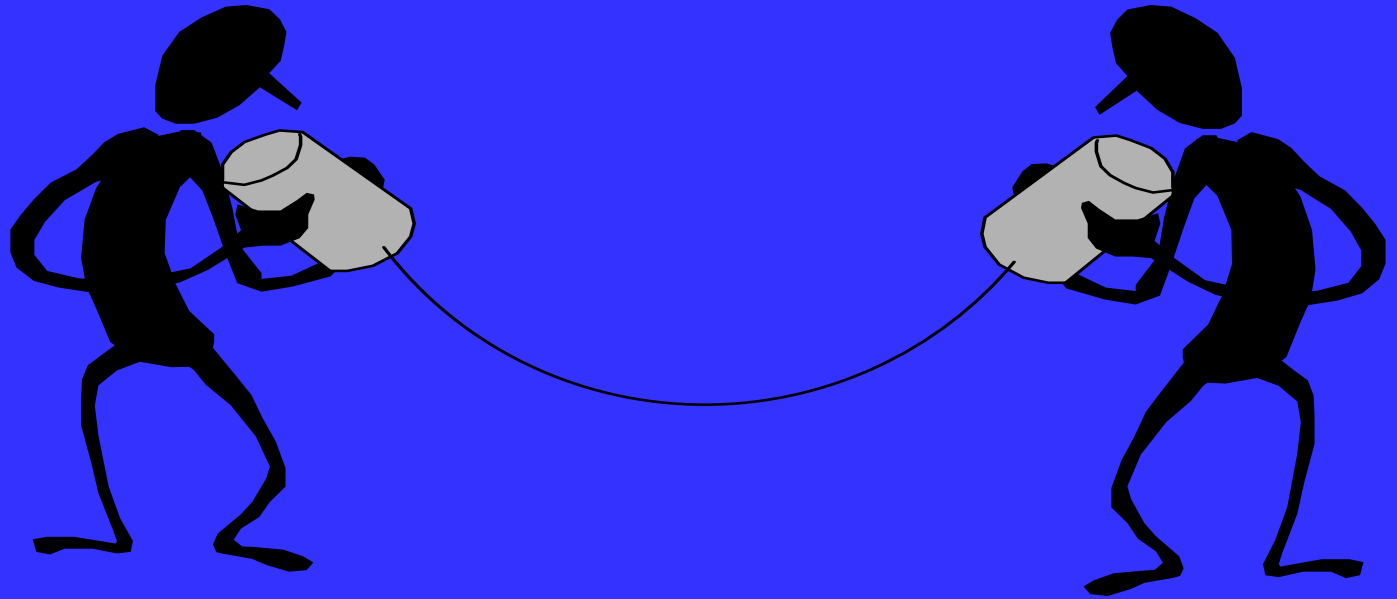
Industrial Type:

**Contractor Workhours:****Contractor Lost Time Cases:****View Option:**

	TOTAL CONTRACTOR WORKHOURS					TOTAL CONTRACTOR LOST TIME CASES					INJURY ILLNESS RATE				
FY	Q1	Q2	Q3	Q4	Annual Total	Q1	Q2	Q3	Q4	Annual Total	Q1	Q2	Q3	Q4	Annual Total
2002	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
2001	428,235	349,790	521,329	484,531	1,783,885	0	1	1	1	3	0.00	.57	.38	.41	.34
2000	380,199	309,000	423,597	375,000	1,487,796	0	0	3	1	4	0.00	0.00	1.42	.53	.54
1999	298,526	455,895	344,827	361,445	1,460,693	0	0	0	1	1	0.00	0.00	0.00	.55	.14
1998	211,139	262,949	309,613	280,755	1,064,456	0	1	0	1	2	0.00	.76	0.00	.71	.38
1997	319,147	334,610	318,160	315,977	1,287,894	0	0	1	2	3	0.00	0.00	.63	1.27	.47
		TOTAL CONTRACTOR WORKHOURS						TOTAL CONTRACTOR LOST TIME CASES					INJURY ILLNESS RATE		
CONTRACT NUMBERS		2002	2001	2000	Total To Date	2002	2001	2000	Total To Date	2002	2001	2000			

	MANHOURS							RECORDABLE LOST TIME CASE					
SMALL FIELD OFFICE (Less than 250,000 Manhours)	1ST	2ND	3RD	4TH	Annual Total	\$ WIP (M)		1ST	2ND	3RD	4TH	Annual Total	IR*
	16,636	15,141	31,088	186,007	248,872	17.4		0	0	0	2	2	1.6
<a href="#">ROICC BREMERTON</a>	18,253	26,378	27,421	43,317	115,369	0		0	0	0	1	1	1.7
<a href="#">ROICC EVERETT</a>	18,200	10,440	18,000	54,363	101,003	0		1	0	0	0	1	2
<a href="#">ROICC FT. WORTH, TX</a>	16,450	39,814	20,822	17,054	94,140	36.1		1	0	0	0	1	2.1
<a href="#">ROICC PANAMA CITY, FL.</a>	35,000	35,000	15,000	10,000	95,000	9.3		1	0	0	0	1	2.1
<a href="#">EFD SOUTH</a>	24,902	28,867	34,675	0	88,444	113		0	0	1	0	1	2.3
<a href="#">ROICC INDIAN HEAD</a>	33,300	38,170	49,410	34,210	155,090	26.9		0	1	1	0	2	2.6
<a href="#">ROICC ATLANTA, GA</a>	10,948	15,782	18,576	9,282	54,588	9.4		1	0	0	0	1	3.7
	MANHOURS							RECORDABLE LOST TIME CASE					
MID-SIZE FIELD OFFICE (250,000 to 550,000 Manhours)	1ST	2ND	3RD	4TH	Annual Total	\$ WIP (M)		1ST	2ND	3RD	4TH	Annual Total	IR*
<a href="#">ROICC TRAVIS</a>	130,362	95,927	83,496	53,554	363,339	0		0	1	0	1	2	1.1
<a href="#">ROICC QUANTICO</a>	54,832	70,574	147,268	189,118	461,792	53.2		1	0	1	1	3	1.3
<a href="#">ROICC NEWPORT, RI</a>	52,444	36,026	93,442	87,597	269,509	50.6		1	0	1	0	2	1.5
<a href="#">ROICC VENTURA COUNTY NAVAL COMPLEX</a>	72,548	89,790	49,977	44,248	256,563	0		0	2	0	0	2	1.6
<a href="#">ROICC NLON</a>	62,534	56,238	85,302	98,686	302,760	48.5		1	0	0	4	5	3.3
	MANHOURS							RECORDABLE LOST TIME CASE					
LARGE FIELD OFFICE (Greater than 550,000 Manhours)	1ST	2ND	3RD	4TH	Annual Total	\$ WIP (M)		1ST	2ND	3RD	4TH	Annual Total	IR*
<a href="#">ROICC NORTHERN ITALY</a>	252,750	256,509	284,006	430,622	1,223,887	6.5		1	3	4	2	10	1.6
<a href="#">ROICC PEARL HARBOR</a>	272,265	337,571	302,936	388,296	1,301,068	0		2	2	4	9	17	2.6
<a href="#">ROICC KAHOLAWE</a>	286,943	280,263	284,918	261,677	1,113,801	0		7	7	6	8	28	5

**“GOAL ZERO  
THROUGH  
ZERO  
TOLERANCE”**



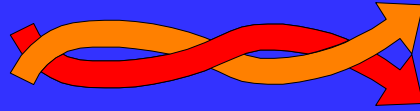
OPEN COMMUNICATION  
BETWEEN THE  
CONSTRUCTION  
REPRESENTATIVE AND THE  
SUPERINTENDANT  
IS A KEY TO SUCCESS

THE CONTRACTOR SITE  
SUPERINTENDENT IS  
RESPONSIBLE FOR  
ENFORCING SAFETY ON  
OUR PROJECTS

HOLD THE SUPERINTENDENT  
ACCOUNTABLE FOR THE  
SAFETY CONTRACT  
REQUIREMENTS FOUND IN  
USACE EM 385-1-1







# SAFETY/QUALITY RELATIONSHIP

## 1. Preparatory Inspection Meeting

AHA REVIEW

## 2. Initial Inspection Meeting

AHA CHECK

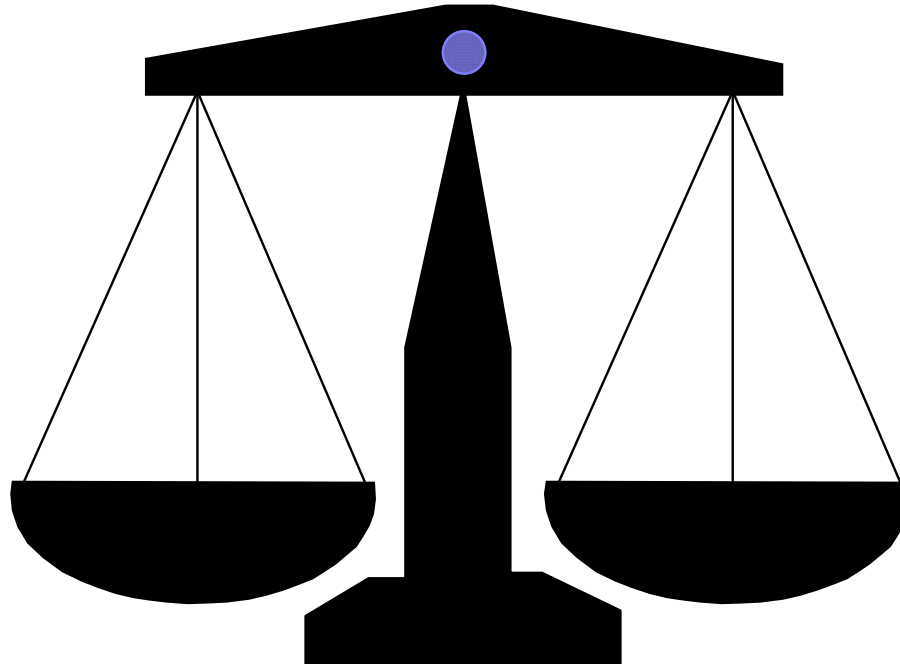
## 3. Follow-up

Three steps for assuring the contractors plan their work out ahead of time so that the right men, material, and equipment are on the job so that the work can be carried out in a safe and workmanlike manner.

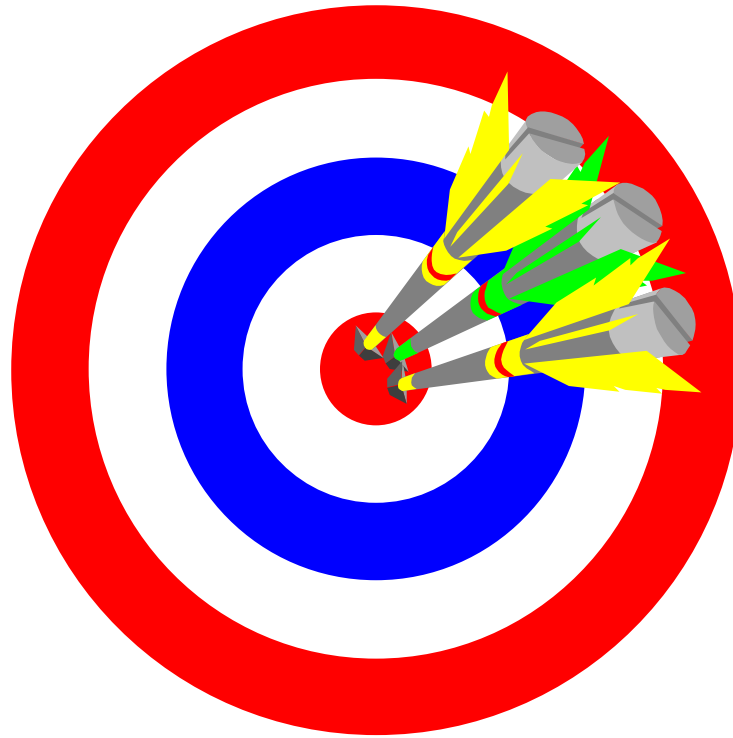
# Management Technique – MBO

- Clear objectives communicated from top managers
- Discussed with employees at performance review
- Verified during time intervals

# SOURCE SELECTION PROCESS AND SAFETY MANAGEMENT RATING FACTOR



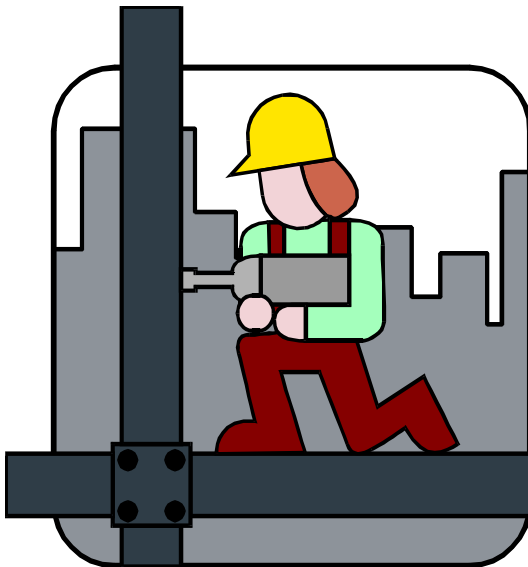
# Construction Safety



“FOCUS AREAS”

# FALL PROTECTION

FALLS FIRST













# **ELECTRICAL**



**Isolate  
Qualified  
PPE**

**Lock Out Tag Out (LOTO)  
Clearances**







# CONFINED SPACES

**Accepted Plan  
Ventilate**

**Training certificates  
Monitor/Evaluate  
Rescue systems**



# EQUIPMENT



Cranes

Bobcats (Small Stuff)

Forklifts

Other







# **ATLANTIC DIVISION, NAVAL FACILITIES ENGINEERING COMMAND**



**HQLANT CONTRACTOR CRANE STAND  
DOWN AWARENESS TRAINING  
2002**



# **WHAT WE NEED TO KNOW ABOUT CRANES**

**CRANE INSPECTION BASICS**

**MANDATORY SAFETY DEVICES**

**TYPES OF CRANES**

**CRANE ASSEMBLY & SET-UP**

**OPERATOR QUALIFICATIONS**

**WATERFRONT CRANE RQ'MTS**

**CRANE PROCEDURES**

**Dry-dock floor is  
60' below with  
Workers**











# CRANE WAS A TOTAL LOSS



# Craney Island Crane Accident

## Why it happened.

- The cause of the accident was crane over load. The contractor did not follow the EM 385, no load indicator, improper method used for demolition of scrap metal, and unstable ground. At the time of the accident the scrap metal was estimated at weighing 7,800 lbs. The clamshell bucket and misc. rigging weighed 5,000 lbs. The configuration at the time of the accident, the crane rated capacity was 5,200 lbs.
- The operator said while swinging the load to the right, he felt the load become unstable. He tried to release the brake a number of times but could not.



Spreader Bar failed while lifting Sheet Piling section off of barge.



View from left side



# Crane Accident



Typical pile cap rotation prior to placement (June 2001)



# **CONTRACTOR QC & GOVERNMENT QA CRANE REQUIREMENTS**

**TYPES OF CRANES**

**KEY DEFINITIONS**

**CONTRACTOR  
REQUIREMENTS**

**GOVERNMENT QA  
OVERSIGHT RQMTS.**



# **CONTRACTING OFFICER RESPONSIBILITY**

**(P-307 1.7.2.1)**

- 1. Provide oversight of all contractor crane operations & compliance with ASME, Contract, & Local Regs.**
- 2. Insure Contractor Accident Investigation & reporting to NCC**
- 3. Follow up corrective actions in Event of Crane Mishap**

# **EXAMPLES OF MANDATORY OPERATIONAL SAFETY DEVICES**

**16.D.01- 16.D.05 & Specification section 01525)**

**ANTI-TWO BLOCK DEVICE**

**SHUT DOWN WINCH/ALARM**

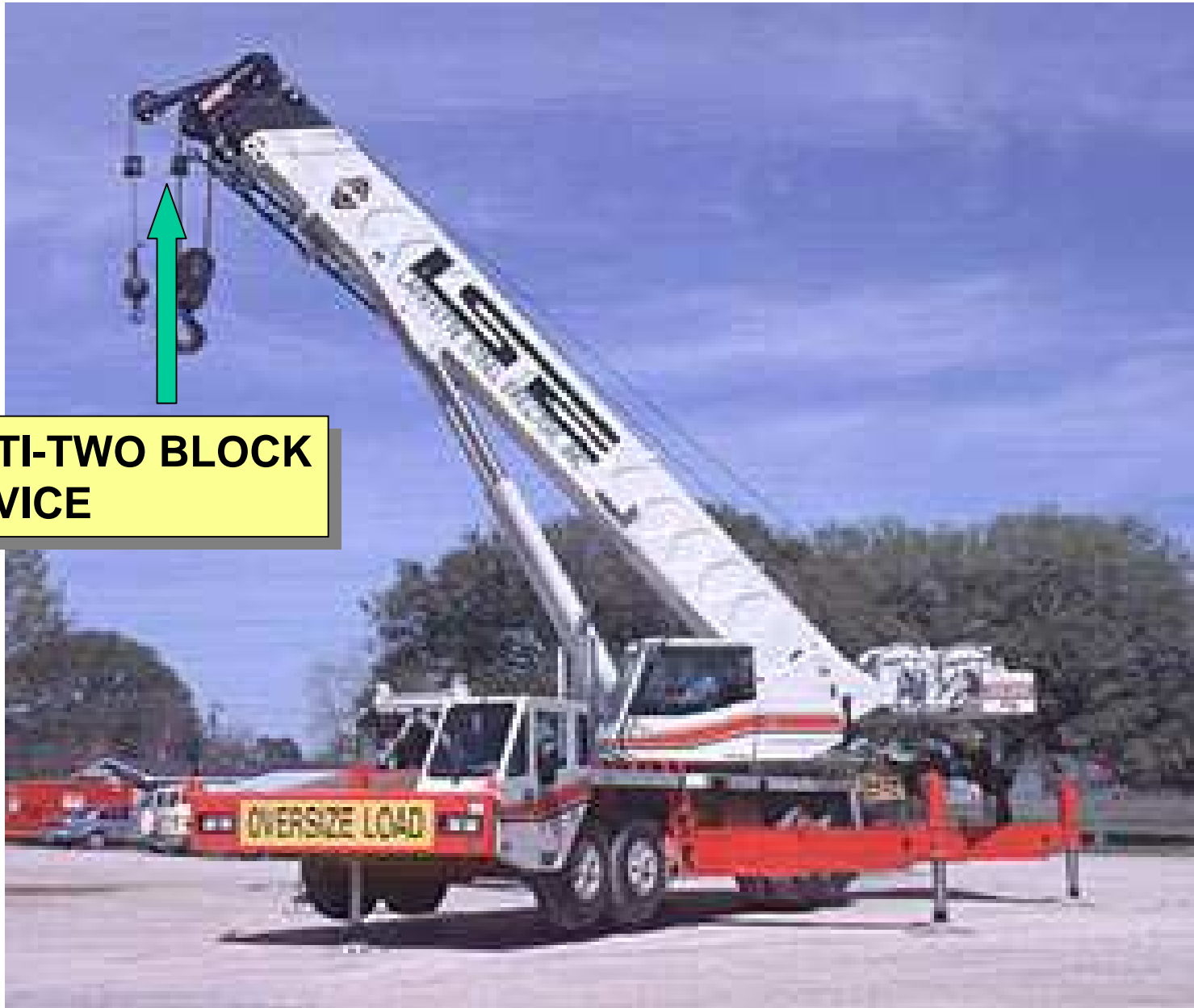
**RADIUS INDICATORS**

**BOOM ANGLE INDICATORS**

**BOOM LENGTH INDICATORS**

**LOAD MOMENT INDICATORS (LMI)**

**MEANS OF DETERMINING LEVELNESS**



**ANTI-TWO BLOCK  
DEVICE**

# BOOM ANGLE INDICATORS

MOST BOOM ANGLE INDICATORS ARE SIMPLE, WEIGHTED MECHANICAL DEVICES



# ***CONTRACTOR* CRANE INSPECTION REQUIREMENTS**

- 1. COMPLETE 25 POINT PERIODIC INSPECTION**  
(When Crane **First Arrives** at the Jobsite EM 385-1-1 Appendix H)
- 2. COMPLETE 14 POINT START-UP INSPECTION**  
(Prior to **every shift** the crane is to be operated)
- 3. COMPLETE CERTIFICATE OF COMPLIANCE**  
(Post in the cab or the vehicle/crane)
- 4. COMPLETE **AND/OR** PROVIDE DOCUMENTATION OF **OPERATIONAL** PERFORMANCE TESTING**
- 5. COMPLETE **AND/OR** PROVIDE DOCUMENTATION OF **LOAD** PERFORMANCE TESTING**

# CRANE QA RESPONSIBILITIES

1. **Verify** crane operators Qualifications
  2. **Verify** administrative items with crane
  3. **Verify** mandatory equipment for crane
  4. **Verify** contractor 25 point Periodic Inspection
  5. **Verify** contractor 14 point Start-up Inspection
  6. **Verify** completion of Certificate of Compliance and posted in the cab.
  7. **ROICC Complete** QA Spot-Check
  8. Observe Operational performance Test \*\*
  9. Observe Operational Load Performance Test\*\*
- \*\* If these items apply**

# **CRANE ADMINISTRATIVE REQUIREMENTS**

**ITEMS REQUIRED TO BE WITH EVERY CRANE**

**(16 C.02 a, b, c)**

**1. MANUFACTURER'S OPERATING MANUAL**

**2. LOAD RATING CHART**

**Make, Model, Serial # & Year of Crane**

**Load Ratings for **all** configurations including  
crane ancillary equipment.**

**Load Line Reeving Recommendations**

**Operating limits for windy or cold conditions**



# CRITICAL LIFT

EM 385-1-1 p. 293

## Critical Lift Plan Required when:

- a. Lifts are to be made when the load weight is 75% of the rated capacity of the crane (**at the configuration**).
- b. Lifts that require the load to be lifted, swung, or placed out of the operators view (blind lift).
- c. Lifts made with more than one crane.
- d. Lifts involving non-routine or “**technically difficult rigging arrangement**”.
- e. Hoisting personnel with a crane or derrick.

# **TECHNICALLY DIFFICULT RIGGING DEFINITION**

- 1. The location of the center of gravity is questionable**
- 2. The structural integrity of the load is questionable (can't support its own weight)**
- 3. The attachment points on the load are not clearly evident (i.e. the load is not designed with attachment points for lifting and the shape of the load does not readily lend itself to common sling configurations such as chocker or basket hitches)**
- 4. A satisfactory rigging configuration is difficult to determine (I.e. the shape or complexity of the load to be lifted prevents the use of standard rigging configuration)**
- 5. Forces generated in & by the rigging configuration are difficult to determine (i.e. additional forces due to multiple lift angles, comprehensive forces on the load)**
- 6. A difficult rigging configuration has to be reassembled for a particular lift and a possibility exists for it to be reassembled incorrectly or for required pieces to be left out**
- 7. A lift involving a submerged load.**
- 8. Crane lifts without the use of outriggers using on rubber load charts**
- 9. Lifts involving the use of more than one hoist**

# **Barge Mounted Floating Crane**



# **SPECIAL REQUIREMENTS FOR BARGE MOUNTED CRANES**

## **LOAD CHART AND CRANE CERT**

**NOT VALID ON BARGE** (Shore Cert not valid)

1. Barge stability calculations are to be done, and reduced capacity load charts provided based on list and trim. (not to exceed 3 degrees)
2. Crane to be load tested to verify list & trim test load 110% (+5%-0%) of the reduced load capacity chart and **re-certified**.
3. (1) New load chart and (2) list trim indicators to be in the crane operators cab.

# LOAD RATING CHART

IN POUNDS ON OUTRIGGERS

Load Radius  
Boom Length  
Lift Capacity  
Rear/side

OUTRIGGERS FULLY EXTENDED - OVER REAR

Radius in Feet	Main Boom Length in Feet (Power Pinned Fly Retracted)										Power Pin. Fly Ext. & 141 ft.
	66	50	70	82	94	106	118	130	141	153	
10	300,000 (74.5)										See Warning Note 17
12	280,000 (72)	143,500 (76)	142,000 (75)								
15	235,000 (67.5)	143,500 (72.5)	141,500 (78.5)	130,000 (78.5)							
20	173,500 (60.5)	143,500 (67.5)	123,500 (72)	112,000 (75)	102,000 (77.5)	90,300 (79.5)					
25	135,500 (52)	131,500 (61.5)	110,500 (67.5)	98,450 (71)	86,250 (74)	78,550 (76.5)	73,700 (78.5)	69,300 (80)			
30	106,000 (43)	106,000 (55.5)	98,000 (63)	88,350 (67.5)	78,750 (71)	69,250 (73.5)	65,100 (76)	61,900 (77.5)	60,000 (79.5)		
35	84,700 (30.5)	84,700 (49)	84,700 (58)	80,150 (63.5)	69,800 (67.5)	60,750 (70.5)	57,150 (73)	54,000 (75.5)	52,150 (77.5)		
40		70,500 (41)	70,500 (52.5)	70,500 (59.5)	61,300 (64)	54,000 (67.5)	50,600 (70.5)	48,300 (73)	45,850 (75)	38,000 (79)	
45	See Warning Note 18	58,850 (32)	58,850 (47)	58,850 (55)	55,800 (60.5)	48,500 (64.5)	45,300 (68)	43,050 (71)	40,400 (73)	35,750 (77)	
50		49,600 (17.5)	49,600 (40.5)	49,600 (50.5)	48,750 (57)	43,050 (61.5)	40,700 (65)	38,250 (68.5)	35,750 (71)	32,100 (75.5)	
60			36,200 (27.5)	36,200 (39.5)	36,200 (48.5)	34,300 (55)	33,600 (59.5)	30,750 (63.5)	28,500 (66.5)	26,350 (72)	
70				26,050 (25)	26,050 (39.5)	26,050 (47.5)	26,050 (53)	24,750 (58)	23,100 (61.5)	22,000 (68.5)	
80					18,850 (27)	18,850 (39)	18,850 (46.5)	18,850 (52.5)	18,700 (56.5)	18,500 (64.5)	
90						13,500 (28)	13,500 (38.5)	13,500 (46.5)	13,500 (51.5)	13,250 (60.5)	
100							9,390 (29)	9,390 (39)	9,390 (45.5)	9,390 (56.5)	
110								6,080 (12.5)	6,080 (30.5)	6,080 (38)	
120									3,390 (17.5)	3,390 (31)	
130										1,150 (19.5)	
140											3,610 (36.5)
150											2,100 (29)
Minimum boom angle (deg.) for indicated length (no load)										10	15
Maximum boom length (ft.) at 0 deg. boom angle (no load)										145	167

NOTE: Boom angles are in degrees.

Deductions:  
Rigging  
Load Block  
Stowed items

# **OVERHEAD POWER LINE CLEARANCE REQUIREMENTS**

**SAFE CLEARANCE MINIMUM OF 10 FEET  
RADIUS UP TO 50,000 VOLTS**

**PLUS .4' FOR EVERY 1000 VOLTS OVER  
50,000 VOLTS**

**Eg: 125 KV Requires  $(.4 \times 75) = 30' + 10' = 12'6''$**

**See COE table 11-3 page 177**



# Activity Hazard Analysis



**AN AHA SHALL BE DEVELOPED AND IMPLEMENTED FOR CRANE SET-UP, AND SET-DOWN PROCEDURES (MOBILIZATION, ASSEMBLY OR ERECTION, DISMANTLING & DEMOBILIZATION) (16.C-08)**



# REVIEW:

1. **Preparatory** Inspection meeting/AHA review
  - a. Contractor required to notify you when crane is to arrive
  - b. Review Spec. 01525/submittals/AHA/Critical Lift Plan if applicable
3. **Initial** –
  - a. Contractor to complete Periodic Inspection (appendix H)
  - b. Contractor to complete daily startup inspection (appendix H)
  - c. ROICC to complete QA spot-check
4. **Follow up** -

QUESTIONS?

DISCUSSION

# DISCUSSION